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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/717,474 | 11/21/2003 | Yutaka Matsunobu | 056203.49196C1 | 9359 |

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CROWELL & MORING LLP
INTELLECTUAL PROPERTY GROUP
P.O. BOX 14300
WASHINGTON, DC 20044-4300

EXAMINER

VANAMAN, FRANK BENNETT

| | |
|----------|--------------|
| ART UNIT | PAPER NUMBER |
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3618

DATE MAILED: 06/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/717,474

Applicant(s)

MATSUNOBU ET AL.

Examiner

Frank Vanaman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ____ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 May 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) 5-8 and 13-16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 9-12, 17 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☒ Certified copies of the priority documents have been received in Application No. 09/54615.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 11/23/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

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Election/Restriction

1. Applicant's election without traverse of Species I in the reply filed on May 27, 2004 is acknowledged.
2. Applicant has identified claims 1-4 and 8-17 as being directed to the elected species. The examiner notes that claim 8 recites a further limitation beyond that recited in claim 6, directed to Species II, and as such, claim 8 includes the limitations of a non-elected species, and is withdrawn from consideration. Claims 13-16 recite a limitation which is not illustrated in association with the elected species (the arc-shaped magnet and inserting hole) and as such, these claims are withdrawn from consideration as being directed to a species which is not illustrated. Claim 17, then is being interpreted as being dependent from those claims which are considered herein, namely 1-4 and 9-12. As such, claims 5-8 and 13-16 are withdrawn from consideration as being directed to a non elected species or a species which is not illustrated. An office action on claims 1-4, 9-12 and 17 (with 17 read as being multiply-dependent from claims 1-4 and 9-12) follows.

Information Disclosure Statement

3. Certain foreign references cited in applicant's information disclosure statement have been indicated as being not considered in view of the present unavailability of the parent application. At such time as the parent application becomes available to the examiner, these foreign references will be considered.

Specification

4. The abstract of the disclosure is objected to because it is too long. Correction is required. See MPEP § 608.01(b), which sets forth the requirements for an abstract of the disclosure.

Claim Identification Terminology

5. Claim 17 is a multiple dependent claim depending from claims associated with both elected and non-elected species. In view of its dependency from claims associated with elected species, claim 17, as dependent from those claims associated with the elected species, is identified as "17/[1-4, 9-12]" so as to explicitly identify the subject matter which is being considered in association with this claim.

Claim Rejections - 35 USC § 112

6. Claims 1-4, 9-12 and 17/[1-4, 9-12] are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 1 lines 2 and 3, and throughout the claims, the use of "type" renders the claims indefinite in that the particular characteristic of a permanent magnet to be applied to the dynamo-electric machine has not been explicitly set forth. In this instance, applicant may desire to recite a dynamo-electric machine having permanent magnets. In claim 1, line 18, it is not clear which element is being referred to by "when reverse moving"; in claim 1, line 20, the recitation of 'greater' is not entirely clear in that the relative object of the term (i.e., greater than what) is not set forth—also note claim 2, line 7. In claims 3 and 4, lines 7-8, the recitation "a forward movement side" is not entirely clear; in claims 9, 10, and 17/[1, 2, 9, 10], the term "permanent magnet inserting hole" lacks a clear antecedent basis. Note that this term is recited in claims 3 and 4, but not in claims 1 and 2.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-4, 9-12 and 17/[1-4, 9-12] are rejected under 35 U.S.C. 103(a) as being unpatentable over Hattori et al. (US 6,048,289, filed 3/1999, cited by applicant) in view of Fumio et al. (JP publication 09271151, cited by applicant). Hattori et al. teach a hybrid electric vehicle having an engine (2) an electric motor (4) connected in series to a drive shaft which is then connected to a CVT (5) and reduction gear (6) for driving the vehicle wheels, the reference teaching no forward/reverse switching gear (note figures 1, 3, 4, etc.), rather teaching that the motor may be driven in a reverse direction to drive the vehicle in reverse in the case of no reverse switching gear being provided (col. 7, lines 61-67). The reference of Hattori et al. fails to teach the motor as being a permanent

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magnet machine having a stator, a stator core around which a coil is wound, a rotor arranged in the stator with a plurality of permanent magnets with the rotor being non-symmetrical at each pole, having a magnet accommodating slot which having a greater width than a magnet width on a side associated with one rotational direction. Fumio et al. teach a motor structure including a stator (20) having an iron core (22) around which a coil (24) is wound, and a rotor (30) arranged inwardly from the stator separated by a stator-rotor gap, with a non-symmetric arrangement characterized by a plurality of permanent magnets (36) installed in magnet slots (figure 5) wherein the ratio of slot width to magnet width is in the range of 1:0.5 to 1:0.9 (again, figure 5), with an open portion begin provided (50) in the slot in one rotational direction, for the purpose of delivering a greater torque in one direction of the rotor motion than the opposite direction. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the non-symmetric configuration of the magnet insertion openings as taught by Fumio et al. to the motor structure in the vehicle of Hattori et al., for the purpose of increasing the operational force which may be exerted by the motor in one rotational direction. As regards the provision of a protruded pole on a motor, the examiner takes Official Notice that the provision of a protruded pole on a motor is very old and well known, and as such, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the motor structure with a protruded pole to adjust the magnetic flux associated with the motor.

Also note that since Hattori teaches motor-only drive in a reverse direction (col. 7, lines 61-67), and in that it is well known to provide a vehicle reverse gear with the lowest speed/highest torque relationship, generally a higher torque relationship than even the first forward gear, it would have been obvious to one of ordinary skill in the art at the time of the invention to arrange the motor such that a reverse drive direction of the motor would develop higher torque than a forward drive direction for the purpose of controlling the vehicle behavior to mirror a user's expectations based on commonly available vehicle with mechanical transmissions. As regards the particular ratio of forward to reverse torque, it would have been obvious to one of ordinary skill in the art at the time of the invention to arrange the difference in torque to be in the range of

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1:1.05 - 1.2 for the purpose of setting a forward to reverse torque relationship similar to that known in a mechanical transmission.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Obayashi et al. (US 6,232,733), Deguchi et al. (US 6,233,508), and Nishiyama et al. (US 6,356,001) teach vehicle and motor structures of pertinence.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to F. Vanaman whose telephone number is 703-308-0424. Any inquiry of a general nature or relating to the status of this application should be directed to the group receptionist whose telephone number is 703-308-1113.

As of May 1, 2003, any response to this action should be mailed to:

Mail Stop _____
Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450,

Or faxed to one of the following fax servers:

Regular Communications/Amendments: 703-872-9326
After Final Amendments: 703-872-9327
Customer Service Communications: 703-872-9325

F. VANAMAN
Primary Examiner
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6/15/04